



DBC Series design to enhance customer's productivity



Speedy Response to the Market Request

- 1. Complete Full line up from Part Machining to Mold & Die of highly Productive Purpose.
- 2. Various Attachment line up preparative countermeasure Increasing high Value-added Machining

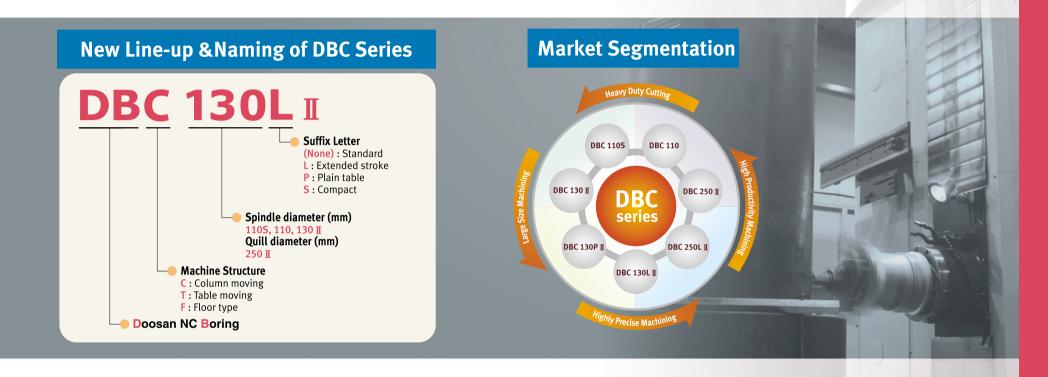
Customer Oriented effort to Improvement

- 1. Operation Improvement by New Control Panel and Change of Various Manipulating Switches.
- 2. Enhanced Reliability through simplifying Wiring & Easy Maintenance.



Advanced Design Column Moving Type DOOSAN Boring Mill

DBC series



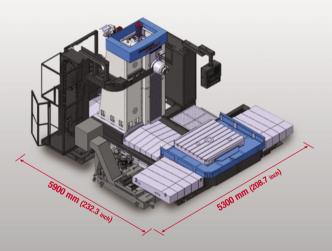
DOOSAN has poured all of its efforts and energies to achieve high performance and rigidity. In the meantime, wide selections of optional accessories are available to fulfill your special applications. We guarantee that you will be totally satisfied with DBC Series.

Variable Line-up DBC series

Full Line up of DBC series for Variable Machining.

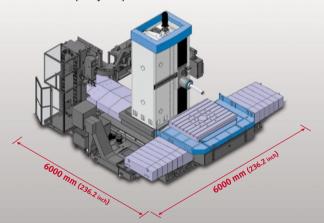
Cost Effective Model DBC 110S

- The most cost reduction benefit wil be provided
- Offering middle size workpiece solution for various machining



Compact Type Model DBC 110

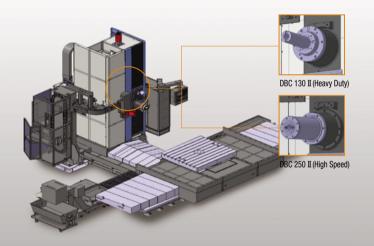
- Designed by compact size and minimized space for high speed heavy cutting
- Approaching to the table center through W-axis stroke
- For various machining performance, high speed spindle and heavy work load capacity are provided



General & Conventional Type Model ••••

DBC 130 II / DBC 250 II

- · Production over 1000 machines
- More stable and improved model for conventional job and heavy working



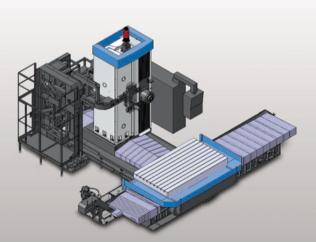
Heavy Load Work-piece Model ••••



- **DBC 130P II**
- Plain type table for heavy load performance
- Without B-axis

Plain type table

Table length 3000 mm (118.1 inch) Load capacity 20000 kg (44091.8 lb)



Large Sized Work-piece Model ••••

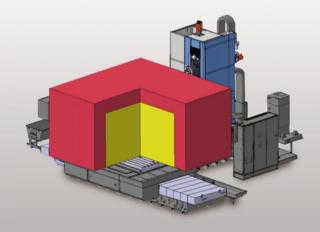


DBC 130L II / DBC 250L II

- · Wide work area through axes extension
- · Column moving type for big size machining
- · Multitasking for various work

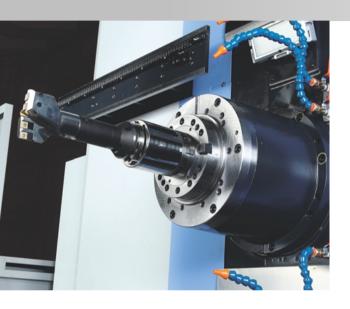
Travel (mm) X/Y/Z

4000 / 2500 / 2000 mm (157.5 / 98.4 / 78.7 inch)



High Performance DBC series

High speed spindle of high quality and rigidity helps increase the efficiency and performance of the machine.



High Speed and Powerful Spindle

Improved thermal stability through perfect cooling control

Use of ultra precision paired spindle bearings ensures high speed, heavy-duty and high precision machining. Perfectly wrapped cooling system of geared box spindle (Except DBC 250 (L) II) for heavy duty machining and built-in spindle (On DBC 250 II) for high speed machining.

Max. spindle speed

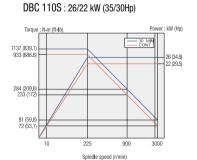
DBC 110S 3000 r/min

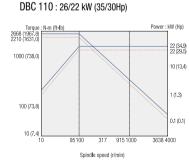
DBC 110 4000 r/min

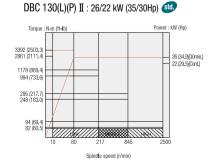
DBC 130(L)(P) II **2500** r/min

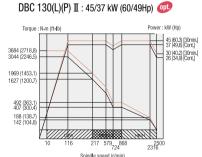
DBC 250(L) II 6000 r/min

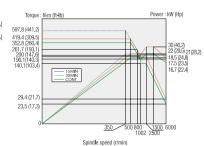
Spindle power-torque diagram











DBC 250(L) II: 30/22 kW (40/30Hp)

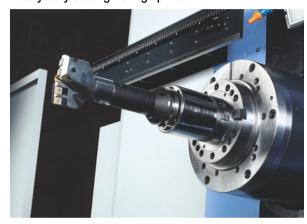
DBC 110

High speed boring spindle



DBC 130(L)(P) II

Heavy duty cutting boring spindle



DBC 250(L) II

High speed built-in quill spindle



High-torque and powerful spindle for heavy duty cutting

- · W-axis clamping device as standard
- · High-power main spindle available

Model	Spindle r/n		Spindle kW	Torque N.m (ft.lb)	
Model	Standard	Option	Standard	Option	N.III (IL.ID)
DBC 110	4000	-	26/22 (35/30)	30/22 (40/30)	2668 (1968) std. 3060 (2257) op.

High-torque and powerful spindle for heavy duty cutting

• High-power main spindle available

Model	Spindle r/n		Spindle kW	Torque N.m (ft.lb)	
Model	Standard	Option	Standard	Option	N.III (IL.ID)
DBC 130(L)(P) II 2500		-	26/22 (35/30)	30/22, 45/37 (40/30), (60/49)	3392 (2503) std 3940 (2960) opt 3684 (2718) opt

High speed Built-in spindle for high precision machining

- Rigid structure for quill feeding
- Grease-typed lubrication for the spindle bearings
- \bullet Stable thermal growth of the spindle bearings despite a long run

Model			e speed nin	Spindle kW	Torque N.m (ft.lb)	
	model	Standard	Option	Standard	Option	N.III (IL.ID)
	DBC 250(L) II	6000	-	30/22 (40/30)	-	598 (441)

High Rigidity

DBC series

Stable bed and column assembles are designed heavy duty machining and durability.



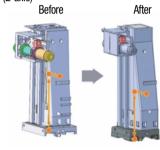
Enhanced Rigidity

The two piece bed is rigid and heavily ribbed Meehanite. These castings remain stable even under the heaviest cutting conditions. Fine grained Meehanite cast iron is used for its excellent vibration absorbing characteristics. The table is fully supported by the saddle in all positions and there is no table overhang. All axes have highly rigid and precise box guideways.

Rigidity of the column

Lowered the center of gravity for minimized the vibration (Z-axis)





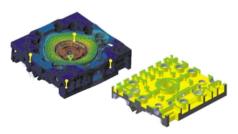
Minimized initial vibration Reduced residual vibration

High Rigid Structure Design of Considering the Machining Capacity

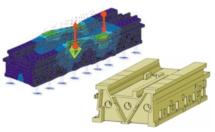


Lower center of gravity of the column to minimize the vibration of the column moving.

• The Y-axis clamp device is attached to the standard.



Appropriate Rib design of the Table & Table base to minimize deformation under Max. Load



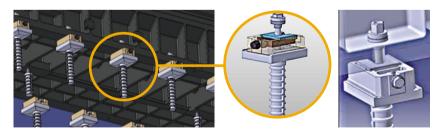
Bed internal design of the M-Type rib minimize deformation and vibration

Machine Structure

Strengthened foundation plan

Inserted ribs reinforce the structural rigidity and dynamic damping characteristics to external load and flowing stress. In any operating conditions, the machine can be maintained under optimal condition.





All foundation level blocks ensure life time guarantee on precision and easy & fast installation work.

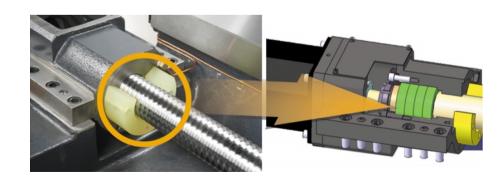
Enhanced rigidity of the axes

Narrow guide system makes Minimized twisting moment effect (X-axis & Z-axis) and Decreased table shaking



Big diameter ball screw & 4 rows bearing

The 4 rows bearing has increased machine rigidity and decreased heat generation of ball screw.



^{*} Except DBC 110S

Superb Accuracy

DBC series

High Precision NC Index Table (0.001°: B-Axis)



Rotary Table

DBC 130(L) $\rm I\!I$, DBC 250(L) $\rm I\!I$ DBC 110S, DBC 110

High precision table 90°±5 s

- B-axis rotary encoder equipped as standard
- Automatic backlash adjusting mechanism



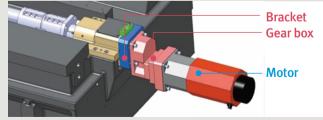


Locating pin (Positioning at each 90°)

Reduction Gear Box for High Torque (X/Z)

To increase thrust force by using servo reducer

DBC series



ATC & Magazine

DBC series

User friendly design for operator.

Servo Driven ATC •

Tool Magazine & carriage by servo control will be accomplished higher reliability, speed smooth operation and reducing noise.

Servo tool magazine & servo carriage





Automatic tool changer





Servo tool magazine

Servo carriage

Acceptable tool dimensions



l mag	

		Spec.	Shape
Max. Tool Diameter	Facing Tool D=ø250mm		
	Boring Tool D=ø400 mm (15.8 inch) [*ø600 mm (23.6 inch)]	0250mm	
	Max. Tool Length	L = 600 mm (23.6 inch)	L
	Max. Tool Weight	W = 25 kg (55.1lb) W = 30 kg (66.1lb) opt.	W Max. A

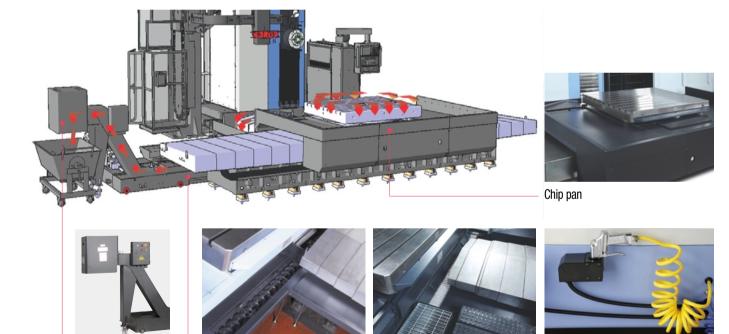
 $\label{eq:Allowable moment: 34 N·m}$ Please attention to cutting edge direction and tool shape in case of Max. Boring tool

Chip treatment from the viewpoint of productivity improvement and environmental countermeasure is important.

DBC series offer a variety of chip control equipment to provide enhanced accuracy and better chip removal capabilities.

Easy Chip Removal Structure

The completely enclosed DBC series guarantee the confinement of chips and coolant to the inside of the machining area. Chips fall into the removable forward mounted chip pan for easy disposal.

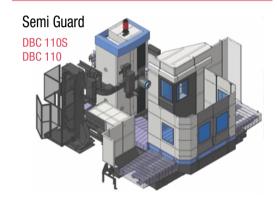


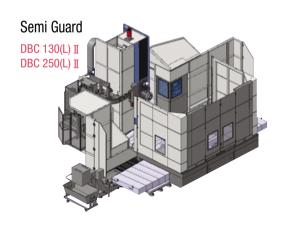
Hinged belt conveyor

(DBC 110S, DBC 130(L) $\rm I\!I$, DBC 130(P) $\rm I\!I$, DBC 250(L) $\rm I\!I$)

Coolant gun opt.

Coolant Splash Guard





Chip conveyor opt.

Coil conveyor

DBC 110

Various Optional Equipments

Depending upon the customer's request, a special development is possible.



Angle Head (Manual) (L=365)



Long Type Angle Head (Manual) (L=660)



Universal head (Manual)



Face plate (Manual)



Indexable Angle Head (90 ° index)



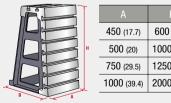
Spindle support *

*: For use ATC with attached spindle support, please contact Doosan.



Facing head (Cogsdill) *

- Manual / Automatic attach available
- *: For more details, please contact Doosan.



	А	В	С	
	450 (17.7)	600 (23.6)	400 (15.8)	
4	500 (20)	1000 (39.4)	550 (21.7)	
	750 (29.5)	1250 (49.2)	750 (29.5)	
	1000 (39.4)	2000 (78.7)	1000 (39.4)	
			Unit : mm (inch)	

Angle plate (4 types)

Advanced CNC system (FANUC-31i)

DBC series

Applied cutting edge technology for machine control



Standard of nano control

High speed and quality realization by nano control and Cutting edge servo technology

Easy Operation NC

Compatible control key setting

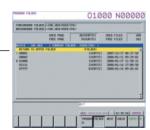
Control keys are developed for easy operation by soft keys which are separated vertical and horizontal display choice and control choice.

Mistake control protection function

- Data in/out put check function
- Confirm of Data delete
- Check message when data renewal
- Check when program operation

File management & editing function similar to that of a PC

Naming of programs with up to 32 characters Paging subprograms with file names Program management by folder.



Memory card slot

- DNC operated function by CF Memory card
- Custom macro function, Sub program call
- Data procedure and editing









Compact flash card

Easy to Use Operation

Peripheral equipment which contains frequently used operational devices is standardized.

• Mono lever jog switches when try to set-up large size machine, very easily can do it

Mono lever jog switches



 Portable **MPG**









Monitoring & Managing Function

Doosan tool load monitoring on



• Inform to operator tool wear or break, when some cases occur. It is designed for protecting tool&work-piece. also it can save tooling list that belong the each works.



Doosan tool management on



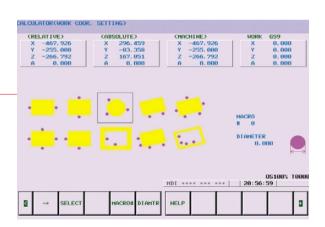
• Users can see which number of tools is stored in each magazine pockets. the status of each tool are displayed, tool wear, tool break, tool life etc. also has pre-checking function



Easy Set-up Guidance with Touch Sensor (OMP60) @

The work coordinate system can be set easily and simply by getting the tool or test bar in touch with work and making operations on the screen.

Also it can be used for the automatic measuring probe.

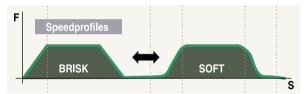


Work load counter control



This function will help upgrading machining efficiency, if customer select proper M-Code according to weight of the work piece, machine can decide itself best moving pattern of the table. And machining can make progress by this decision.

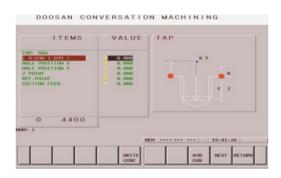
M-Code	Work Load	DBC 110	DBC 130 I I	DBC 130(L)II	DBC 130(P) I I	DBC 250 II	DBC 250(L) II
M380	5 Ton and less	•	•	•	•	•	•
M381	10 Ton and less	•	•	•	•	•	•
M382	15 Ton and less		•	•	•	•	•
M383	20 Ton and less			• opt	•		



Easy Pattern Cycle 🚥

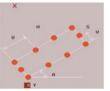


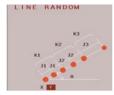
This software provides machining patterns required for part machining. It will greatly reduce programming time and can be used for machining on the shop floor immediately.



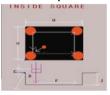
Drilling pattern







End-mill pattern







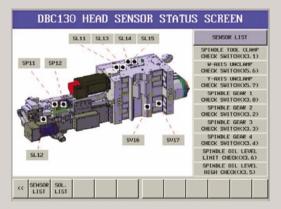
Support Function for Maintenance

Easy operation guidance on



This Guidance can be to operate machine easily and offer customer five detail function for convenience.

- Alarm Guidance
- Useful Function Setting Screen
- Operation Report
- Thermal Error Compensation
- Program Remaining Cycle Time



Periodically checking function •••

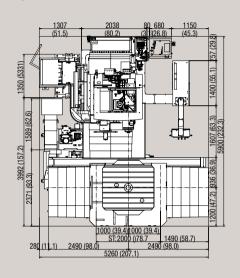


• Periodic inspection inform is displayed Consumable goods such as grease and oil.

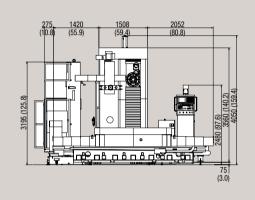


DBC 110S

Top View



Front View



Side View

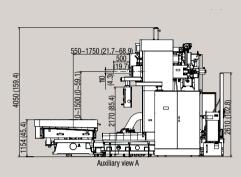
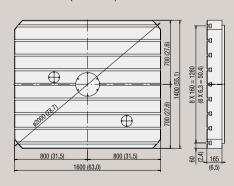
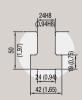


Table std.

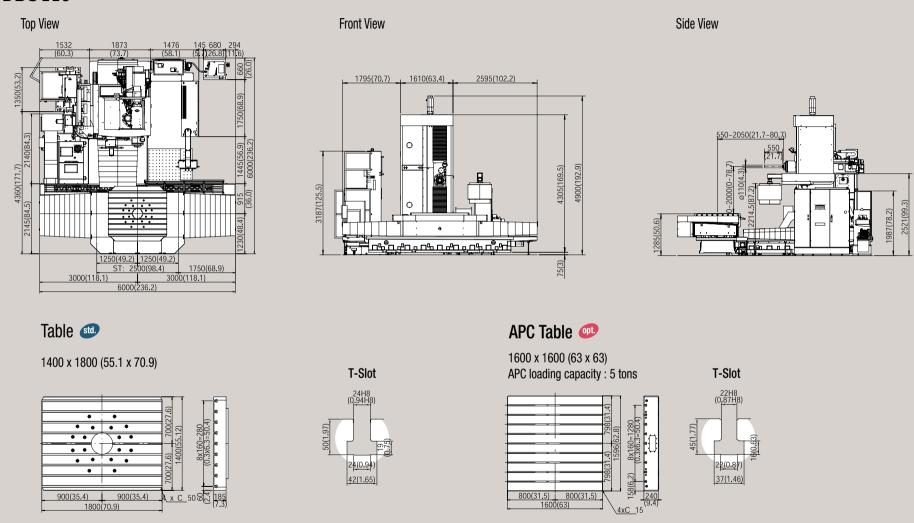
1400 x 1600 (55.1 x 63)



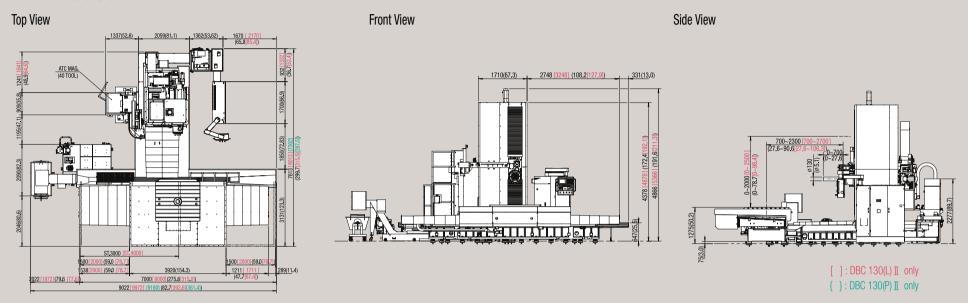
T-Slot

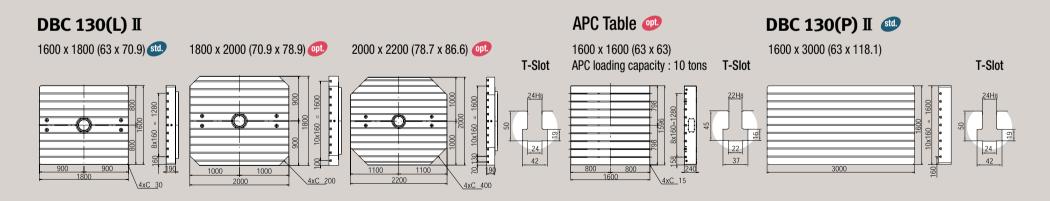


DBC 110

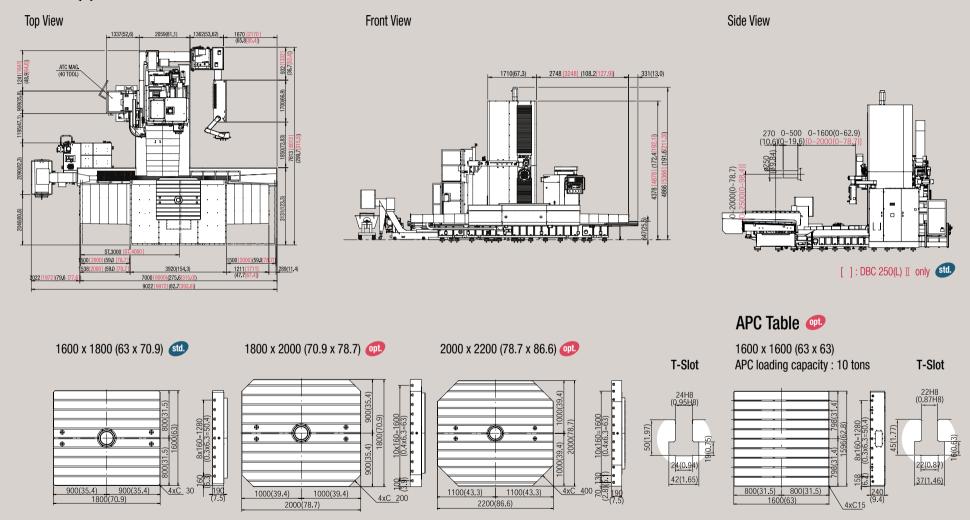


DBC 130(L)(P) II





DBC 250(L) II



Machine Specifications

	Features		Unit	DBC 110S	DBC 110	DBC 130 II	DBC 130L II	DBC 130P II	DBC 250 II	DBC 250L II
	X-axis		mm (inch)	2000 (78.7)	2500 (98.4)	3000 (118.1)	4000 (157.5)	3000	(118.1)	4000 (157.5)
	Y-axis		mm (inch)	1500 (59)		(78.7)	2500 (98.4)		(78.7)	2500 (98.4)
- .	Z-axis		mm (inch)	1200 (47.2)	1500 (59)	1600 (63)	2000 (78.7)		0 (63)	2000 (78.7)
Travel	W-axis		mm (inch)	500 (19.6)	550 (21.7)	(**)	700 (27.6)		. ' /	19.7) 500 (19.7)
	Distance from spindle nose	e to table top	mm (inch)	0~1500 (0~59)	0~2000	(0~78.7)	0~2500 (0~98.4)	100~2100 (3.9~82.7)	0~2000 (0~78.7)	0~2500 (0~98.4)
	Distance from spindle nose	e to table center	mm (inch)	550~1750 (21.7~68.9)	550~2050 (22.7~80.7)	700~2300 (27.6~90.5)	700~2700 (27.6~106.3)	700~2300 (27.6~90.5)	770~2370 (30.3~93.3)	770~2770 (30.3~109.1)
	T		C	1400 x 1600	1400 x 1800	1600 x 1800 {1800	x 2000, 2000 x 2200}	1600 x 3000	\ /	(2000, 2000 x 2200}
	Table size		mm (inch)	(55.1 x 63)	(55.1 x 70.9)	•	x 78.7, 78.7 x 86.6})	(63 x 118.1)		(78.7, 78.7 x 86.6))
	Outro Diseasets	Without semi-S/G	mm (inch)	Ø2500 (Ø98.4)	Ø3400 (Ø133.8)	Ø3900 (Ø153.5)	Ø4800 (Ø188.9)	-	Ø3900 (Ø153.5)	Ø4800 (Ø188.9)
	Swing Diameter	Semi-S/G	mm (inch)	Ø2100 (Ø82.6)	Ø2250 (Ø88.5)	` '	(Ø133.8)	-	· '	Ø133.8)
		1400 x 1600 mm	kg (lb)	7000 (15432.1)	-	-	-	-		
		1400 x 1800 mm	kg (lb)	-	10000 (22045.9)	-	-	-		
Table	Table loading capacity	1600 x 3000 mm	kg (lb)	-	-	-	-	20000 (44091.8)		
Tuble	rable loading capacity	1600 x 1800 mm	kg (lb)	-	-	15000 (33068.9)	15000 (33068.9)	-	15000 (33068.9)
		1800 x 2000 mm	kg (lb)	-	-	13000 (28659.7)	13000 (20000) (28659.7(44091.8))		13000 (
		2000 x 2200 mm	kg (lb)	-	-	12000 (26455.1)	12000 (19000) (26455.1 (41887.2))	-	12000 (26455.1)
	T-slot					,	9-24H8			,
	Least command increment	t					0.001 °			
	Rotating speed		r/min		2	1	1 {0.75}	-		1
	Tool shank						ISO #50, 7/24 taper			
	Pull stud			MAS403-P50T-1 / DIN69875 #50 / CAT 50						
Spindle	Max. spindle speed		r/min	3000	4000		2500		60	00
Spiriule	Spindle motor (30min/cont	t.)	kW (Hp)			26 / 22 (34.9 / 29.5)			30 / 22 (4	0.2 / 29.5)
	Boring spindle diameter		mm (inch)	110	(4.3)		130 (5.1)			
	Quill diameter		mm (inch)			-			250	(9.8)
D!	Rapid traverse rate (X / Y /	' 7\	m/min (ipm)	1	2	10	10/8/10{7/8/10}	7/8/10	10	10/8/10
Rapid traverse rate	rse Rapid traverse rate (X / Y / Z)		minim (ipm)	(47	2.4)	(393.7)	(393.7 / 315 / 393.7 (275.6 / 315 / 393.7))	(276.5 / 315 / 393.7)	(393.7)	(393.7 / 315 / 393.7)
rate	W-axis m		m/min (ipm)	6 (236.2) 10 (393.7)					93.7)	
Cutting feedrate	Cutting feedrate		mm/mm (ipm)	1~8000	(1~315)			1~4000 (1~157.5)		
	Tool Strorage capacity		ea				40 / 60 / 90			
	Tool shank			MAS403 BT50						
ATC	Max. tool diameter		mm (inch)				Ø130 {Ø600} (Ø5.1 {Ø23.6})			
AIC	Max. tool length		mm (inch)				600 (23.6)			
	Max. tool weight kg (lb)		kg (lb)	25 (55.1)						
	Method of tool selection			Fixed address						
Power source	Electric power supply (rate	d capacity)	kVA				70			
1 OVVCI Source	Compressed air supply		Mpa (Psi)				0.54 (78.3)			
	Machine weight		kg (lb)	24000	36000	43000	48000 (50000)	47000	43000	48000
Machine size			ng (ib)	(52910.2)	(79365.2)	(94797.4)	(105821.9 {110231.1})	(103616.0)	(94797.4)	(105821.9)
Muchine Size	Machine dimension (L x W)	mm (inch)	5300 x 5900 (208.7 x 232.2)	6000 x 6000 (236.2 x 236.2)	7650 x 9050 (301.1 x 356.3)	8060 x 10000 (317.3 x 393.7)	7350 x 9200 (289.4 x 362.2)	7650 x 9050 (301.1 x 356.3)	8060 x 10000 (317.3 x 393.7)
	Machine height		mm (inch)	4050 (159.4)	4900 (192.9)	5000 (196.9)	5400 (212.6)	5000	(196.9)	5400 (212.6)
										Note · / Lare ontional

Note: {} are optional.

Standard Feature & Optional Feature

Standard feature

Otalidala loatalo	
Spindle Air Curtain (Only DBC 250(L)	
Spindle Cooling System	
Spindle Lubrication Device	
Spindle Internal Cooling System (Only DBC 110S, DBC 110, DBC 130(L/F)	9) Ⅱ)
Axis Gear Box for Y-axis	
B-axis Rotary Encoder	
Automatic Table Clamping Unit	
Automatic Table Locating Pin (each 90°)	
Hydraulic Power Unit	
Y-axis Clamp (Only DBC 110, DBC 250(L)	
W-axis Clamp (Only DBC 110, DBC 250(L)	
• Tool KIT	
Leveling Blocks & Anchoring Bolts (Except DBC 110S)	
Leveling Bolts & Anchoring Bolts (Only DBC 110S)	
Z-axis Coolant Pan	
Table Chip Pan	
Column Guideway Chip cover	
Slide Way Covers (X/Y/Z)	
Chip Disposal	
Chip conveyor & Chip tray	
Main OP. Panel	
2-Linkage type	
Portable-MPG	
Work Light (Halogen Lamp) (Only DBC 110S, DBC 110, DBC 250(L)	II)
Work Light (LED Lamp) (Only DBC 130(L)	
Signal Tower	
Foot Switch for Tool Unclamp	
Mono Lever Jog Switches	
Spindle Load Meter	
* The specifications and information above-mentioned may be changed	with

• Spindle Thermal Compensation System (Except DBC 250(L) II)
• External M-CODE (4ea)
Periodical Checking Function
Actual Spindle Speed Display on LCD
Self Diagnosis Function
• DSQ1*
Customer's Manual
Work Load Counter Control ®
Easy pattern Cycle
Linear Scale Feedback System
Absolute Type (Only DBC 110(X AXIS), DBC 250(L) ${\rm 1\!I}$)
Big Plus [®] Spindle (Except DBC 130(L) II)
* Note) DSQ1: AICC II with High Speed Processing + Machining Condition Selection + Data Server(1GB)
Optional feature
Adaptive Feedrate Control Function
Attachment
• Attachment Manual Head (L=365)
Manual Head (L=365)
Manual Head (L=365) Manual Long Type (L=660)
Manual Head (L=365) Manual Long Type (L=660) Indexable Angle Head (90° Index)
Manual Head (L=365) Manual Long Type (L=660) Indexable Angle Head (90° Index) Manual Universal Head (L=500)
Manual Head (L=365) Manual Long Type (L=660) Indexable Angle Head (90° Index) Manual Universal Head (L=500) Manual Face Plate (ø650)
Manual Head (L=365) Manual Long Type (L=660) Indexable Angle Head (90° Index) Manual Universal Head (L=500) Manual Face Plate (ø650) Spindle Support (DBC 130(L) II: L=310)
Manual Head (L=365) Manual Long Type (L=660) Indexable Angle Head (90° Index) Manual Universal Head (L=500) Manual Face Plate (ø650) Spindle Support (DBC 130(L) II: L=310) (DBC 110S, DBC 110: L=200)
Manual Head (L=365) Manual Long Type (L=660) Indexable Angle Head (90° Index) Manual Universal Head (L=500) Manual Face Plate (ø650) Spindle Support (DBC 130(L) II : L=310) (DBC 110S, DBC 110 : L=200) Attachment Ready (Cogsdill)
Manual Head (L=365) Manual Long Type (L=660) Indexable Angle Head (90° Index) Manual Universal Head (L=500) Manual Face Plate (ø650) Spindle Support (DBC 130(L) II : L=310) (DBC 110S, DBC 110 : L=200) Attachment Ready (Cogsdill) Attachment Ready (D'Andrea)

Coolant Gun	
TSC-20bar	
High Capacity Type Coola	nt Pump
Oil Skimmer	
Safety Fence & Interlock	Switches
Coolant Splash Guard	
Semi Guard	
Auto Door Semi Guard	
Linear Scale Feedback St	ystem
Absolute Type (Only DBC 110	S, DBC 110(Y, Z AXIS), DBC 130(L/P) II
ATC (ATC OP. Panel) - 40) / 60 / 90 tools
APC (APC OP. Panel)	
Max. Workpiece Weight	DBC 110 : 5ton
	DBC 130(L) I /250(L) I : 10tor
• Air Gun	
Auto Tool Length Measur	ement
Tool Breakage Detect Full	nction
Master Tool for Auto-Too	Length Measurement
Auto Workpiece Measure	ment
• Easy Set Up Guidance ® (with OMP60)
Master Block gauge for	
Auto Workpiece Measure	ment
• Test Bar (BT 50)	
Chip Disposal	
Lift Up Chip Conveyor	Hinged Belt Type
	Magnetic Scraper Type
Chip Bucket	380L
• Raising Block (250mm)	
Additional 6th Axis	

Package #1 : Only Wiring
Package #2 : Hydraulic & Control Ready
Package #3 : Full Opt.
Angle Plate
450 X 600 X 400mm / 500 X 1000 X 550mm
750 X 1250 X 750mm / 1000 X 2000 X 1000mm
Edge Locator (Table/ Pallet)
Big Plus [®] Spindle (Only DBC 130(L) II)
CNC Systems (Heidenhain)
Auto Power Off
Auto Power On
Electric Line Filter
Work Counter
Total Counter
Electric Leakage Breaker
Operator's Call Buzzer
Electric Box Light
Electric Box Air con
• 3-MPG (Portable)
Doosan Tool Load Monitoring
Doosan Tool Management
Easy Operation Guidance
APC Pallet Retract Function
• DSQ2 *
• DSQ3 *
Speed Limit Control for Attachment
Machine Warming Up Function
Center Bush (Ø50mm) (Except DBC 110S)

* Note) DSQ2 : DSQ1 + Data Server (1GB)
DSQ3 : AICC II with high speed processing +
Machine condition selection + Data server (1GB)

• Add Y Brake

^{*} The specifications and information above-mentioned may be changed without prior notice.

^{*} For more details, please contact Doosan.

NC Unit Specifications Fanuc 31i

DBC 110, DBC 130(L) II , DBC 250(L) II

AXES CONTROL

- Controlled axes	5 (X,Y,Z,W,B)
- Simultaneously controllable axes	
Positioning(G0	0)/Linear interpolation(G01): 3 axes
Circu	ular interpolation(G02, G03): 2 axes
- Backlash compensation	
- Emergency stop / overtravel	
- Follow up	
- Least command increment :	0.001mm / 0.0001(inch)
- Least input increment :	0.001mm / 0.0001(inch)
- Machine lock	all axes / Z axis
- Mirror image	Reverse axis movement
	(setting screen and M - function)
- Stored pitch error compensation	
Pitch erro	or offset compensation for each axis
- Stored stroke check 1	Overtravel controlled by software

INTERPOLATION & FEED FUNCTION

INTERPOLATION & FEED FUNCTION		
- 2nd reference point return	G30	
- Circular interpolation	G02, G03	
- Dwell	G04	
- Exact stop check	G09, G61(mode)	
- Feed per minute	mm / min	
- Feedrate override (10% increments)	0 - 200 %	
- Jog override (10% increments)	0 - 200 %	
- Linear interpolation	G01	
- Manual handle feed(1 unit)		
- Manual handle feedrate	0.1/0.01/0.001mm	
- Override cancel	M48 / M49	
- Positioning	G00	
- Rapid traverse override	F0 (fine feed), 25 / 50 / 100 %	
- Reference point return	G27, G28, G29	
- Skip function	G31	
- Helical interpolation		
- Al Contour Control II	200 block preview	
- Thread cutting, synchronous cutting		
- Program restart		
- Automatic corner deceleration		
- Feedrate clamp by circular radius		
- I ecurate ciamp by circular radius		
- Linear ACC/DEC before interpolation		
. ,		
- Linear ACC/DEC before interpolation		
- Linear ACC/DEC before interpolation - Linear ACC/DEC after interpolation	on/deceleration	

- Dual position feedback	
- Smooth backlash compensation	1

SPINDLE & M-CODE FUNCTION

- M- code function	M 3 digits
- Spindle orientation	
- Spindle serial output	
- Spindle speed command	S5 digits
- Spindle speed override (10% increments)	50 - 150 %
- Spindle output switching	
- Retraction for rigid tapping	
- Rigid tapping	G84, G74
- Polar coordinate interpolation	G12.1 / G13.1
- Scaling	G50, G51

TOOL FUNCTION

- Cutter compensation C	G40, G41, G42
- Number of tool offsets	200 ea
- Tool length compensation	G43, G44, G49
- Tool number command	T3 digits
- Tool life management	
Geometry / Wear and Length /	Radius offset memory
- Tool offset memory C	

PROGRAMMING & EDITING FUNCTION			
- Absolute / Incremental programming]		G90 / G91
- Auto. Coordinate system setting			
- Background editing			
- Canned cycle	G73, G74,	G76, G80 -	- G89, G99
- Circular interpolation by radius progr	ramming		
- Custom macro B			
- Custom size 512kb			
- Addition of custom macro common	variables		
- Decimal point input			
- I / O interface			RS - 232C
- Inch / metric conversion			G20 / G21
- Label skip			
- Local / Machine coordinate system			G52 / G53
- Maximum commandable value			
±9	19999.999n	nm (±9999.	9999 inch)
- No. of Registered programs			500 ea
- Optional block skip			

- Optional stop		M01
- Part program storage		640 m
- Program number		04-digits
- Program protect		
- Program stop / end		M00 / M02,M30
- Programmable data input		
Tool offset and	l work offset	are entered by G10, G11
- Sub program		Up to 4 nesting
- Tape code	ISO / EIA	Automatic discrimination
- Work coordinate system		G54 - G59
- Additional work coordinate system	m(48 Pair)	G54.1 P1 - 48 pairs
- Coordinate system rotation		G68, G69
- Extended part program editing		
- Optional angle chamfering / corn	er R	
- Macro executor		

0	OTHERS FUNCTIONS (Operation, Setting & Display, etc)		
	- Alarm display		
	- Alarm history display		
	- Clock function		
	- Cycle start / Feed hold		
	- Display of PMC alarm messag	e	
	Me	ssage display when PMC alarm occurred	
	- Dry run		
	- Ethernet function (Embedded)		
	- Graphic display	Tool path drawing	
	- Help function		
	- Loadmeter display		
	- MDI / DISPLAY unit		
	10.4" colo	LCD, Keyboard for data input, soft-keys	
	- Memory card interface		
	- Operation functions	Tape / Memory / MDI / Manual	
	- Operation history display		
	- Program restart		
	- Run hour and part number dis	play	
	- Search function	Sequence NO. / Program NO.	
	- Self - diagnostic function		
	- Servo setting screen		
	- Single block		
	- External data input		
	- Multi language display		

OPTIONAL SPECIFICATIONS	
- 3-dimensional coordinate conversion	
- 3-dimensional tool compensation	
- 3rd / 4th reference return	
- Addition of tool pairs for tool life mana	agement 1024 pairs
- Additional controlled axes	max. 6 axes in tota
- Additional work coordinate system	G54.1 P1 - 300 (300 pairs
- Al Contour Control II	600 block previev
- Automatic corner override	G62
- Chopping function	G81. ⁻
- Cylindrical interpolation	G07.1
- Data server	
- Dynamic graphic display	Machining profile drawing
- Exponential interpolation	
- Interpolation type pitch error compens	sation
- EZ Guide i (Doosan infracore Conversat	ional Programming Solution)
	with 10.4" Color TF
- Tape format for FS15	
- Increment system 1/10	
- Figure copying	G72.1, G72.2
- Manual handle feed 2/3 unit	
- Handle interruption	
- High speed skip function	
- Involute interpolation	G02.2, G03.2
- Machining time stamp function	
- No. of Registered programs	1000/2000/4000 ea
- Number of tool offsets	400/499/999/2000 ea
- Optional block skip addition	9 blocks
- Part program storage	
	2560 / 5120 / 10240 / 20480 n
- Playback function	
- Polar coordinate command	G15 / G16
- Programmable mirror image	G50.1 / G51.
- Single direction positioning	G60
- Stored stroke check 2 / 3	dot
- Tool offset	G45 - G48
- Position switch	010 010
1 OORION OWNER	

NC Unit Specifications Fanuc 32i

DBC 110S AXES CONTROL

AXES CONTROL	
 Controlled axes 	5 (X,Y,Z,W,B)
- Simultaneously controllable axes	
	inear interpolation (G01): 3 axes
	interpolation (G02, G03): 2 axes
	interpolation (doz, dos) . 2 axes
- Backlash compensation	
- Emergency stop / overtravel	
- Follow up	
- Least command increment :	0.001mm / 0.0001(inch)
- Least input increment :	0.001mm / 0.0001(inch)
- Machine lock	all axes / Z axis
- Stored pitch error compensation	uli uxoo / 2 uxio
	effect consequently for each order
Pilcii error	offset compensation for each axis
- Stored stroke check 1	Overtravel controlled by software
INTERPOLATION & FEED FUNCTION	
- 2nd reference point return	G30
- Circular interpolation	G02. G03
- Dwell	G04
- Feed per minute	mm / min
- Feedrate override (10% increments)	
- Jog override	0 - 5000 mm / min
- Linear interpolation	G01
- Manual handle feedrate	0.1/0.01/0.001mm
- Override cancel	M48 / M49
- Positioning	G00
Rapid traverse override	F0 (fine feed), 25 / 50 / 100 %
- Reference point return	G27, G28, G29
- Skip function	G31
- Helical interpolation	401
- NANO AICC (Al Contour Control)	80 block preview
	ou block preview
- Thread cutting, synchronous cutting	
- Program restart	
Automatic corner deceleration	
 Feedrate clamp by circular radius 	
 Linear ACC/DEC before interpolation 	
Elifodi 7100/BEO Bolloro Intol Bollation	
SPINDLE & M-CODE FUNCTION	
	M O dielle
- M- code function	M 3 digits
- Spindle orientation	
- Spindle serial output	
 Spindle speed command 	S5 digits
 Spindle speed override (10% increments 	10 - 150 %
- Rigid tapping	G84 G74
Polar coordinate interpolation	G12.1 / G13.1
	CEO CE1
- Scaling	G50, G51
TOOL FUNCTION	
TOOL FUNCTION	
- Cutter compensation C	G40, G41, G42
- Number of tool offsets	200 ea
- Tool length compensation	G43, G44, G49
- Tool number command	T3 digits
	and Length / Radius offset memory
- Tool offset memory C	
PROGRAMMING & EDITING FUNCTION	
- Auto. Coordinate system setting	
- Background editing	
	G73, G74, G76, G80 - G89, G99
Circular interpolation by radius assessment	ars, ar4, ar0, aou - ao9, a99
- Circular interpolation by radius programn	illiy
- Custom macro B	
- Custom size	512kb
- I / O interface	RS - 232C
- Inch / metric conversion	G20 / G21
- Local / Machine coordinate system	G52 / G53

	±99999.999mm (±9999.9999 inch)
- No. of Registered programs	500 ea
- Optional block skip	1104
- Optional stop	M01
- Part program storage	640 m
- Program number	04-digits
- Program protect	M00 / M00 M00
- Program stop / end - Programmable data input	M00 / M02,M30
- Frogrammable data input Tool offect or	nd work offset are entered by G10, G11
- Sub program	Up to 4 nesting
- Tape code	ISO / EIA Automatic discrimination
- Work coordinate system	G54 - G59
Additional work coordinate system	(48 Pair) G54.1 P1 - 48 pairs
Coordinate system rotation	G68, G69
- Macro executor	400, 400
OTHERS FUNCTIONS (Operation, Setti	ng & Display, etc)
 Alarm history display 	
- Cycle start / Feed hold	
	essage display when PMC alarm occurred
- Dry run	
 Ethernet function (Embeded) 	
- Graphic display	Tool path drawing
- Help function	
 Loadmeter display 	
	LCD, Keyboard for data input, soft-keys
- Memory card interface	T /11 /1151/11
- Operation functions	Tape / Memory / MDI / Manual
- Program restart	0NO / P NO
- Search function	Sequence NO. / Program NO.
- Servo setting screen - External data input	
- Multi language display	
- Multi language display	
OPTIONAL SPECIFICATIONS	
- 3rd / 4th reference return	
- Addition of tool pairs for tool life ma	anagement 512 pairs
- Additional controlled axes	max. 6 axes in total
- Additional work coordinate system	
- Al HPCC* (High Precision Contour O	
	600 block preview
- Automatic corner override	G62
- Chopping function	G81.1
 Cylindrical interpolation 	G07.1
 Interpolation type pitch error compe 	ensation
- EZ Guide i (Doosan infracore Conve	ersational Programming Solution)
with 10.4" Color TFT	
- Increment system 1/10	
- Manual handle feed 2/3 unit	
- Handle interruption	
- High speed skip function	000 0 000 0
- Involute interpolation	G02.2, G03.2
- Machining time stamp function	4000
No. of Registered programs	1000 ea
- Number of tool offsets	400 ea
Optional block skip addition Part program storage	9 blocks
Part program storage Polar coordinate command	1280 / 2560 m G15 / G16
- Programmable mirror image	מובו / כובו
	G50 1 / C51 1
	G50.1 / G51.1
Stored stroke check 2 / 3 Tool load monitoring function (Doos	G50.1 / G51.1

Heidenhain iTNC 530

DBC series

AXES CONTROL

- Controlled axes	5 (X,Y,Z,W,B)
- Simultaneously controllable axes	
	Positioning /Linear interpolation 5 axes
	Circular interpolation 2 axes
	Helical interpolation 3 axes
- Backlash compensation	
- Least command increment :	0.001mm / 0.0001(inch)
- Least input increment :	0.001mm / 0.0001(inch)
- Linear axis error compensation	
- Reversal peaks with circular move	ement compensation
- Stick-slip friction compensation	

INTERPOLATION & FEED FUNCTION

- Straght line In	5 axe
- Circle	In 3 axe
- Helix interpolation	
- Spline interpolation	
- Feed hold	sto
- Feedrate override	0 -150 9
- Manual handwheel feed	1 un
- Optional block skip	
- Single block	
- Feedfoward	

SPINDLE FUNCTION

- Spindle orientation	
- Spindle override	0 - 150
- Spindle position control	

TOOL FUNCTION

- 3 dimensional tool compensation	
- Number of tool offset	999
- Tool management	

PROGRAMMING & EDITING FUNCTION

- Heldermain conversation format programming	
- Program memory	Approx 26GB on hard disk
- No. of registered program	No limit

- Mathematical function	
- Programming with variable	Q parameters
- Caculator	
- Complete list of all current error messages	
- Context-sensitive help function for error message	
- The integrated help system TNC guide	
- Graphical support for programming cycles	
- Comment and structure blocks in the NC program	
- Acture position capture	
- Graphic simulation	
- Plane view	
- Programming graphics	
- Returning to the contour	
- Datum tables	

OTHERS FUNCTIONS (Operation, Setting & Display, etc.)

OTHERS FUNCTIONS (Operation, Setting & Display, etc)	
- Actual speed display	
- Alarm display	
- Display	TFT 15" color
- Clock function	
- Integrated oscilloscope	
- Log(error message and keystroke) use PCs	
- Diagnostic function	
- Trace function	
- Ethernet TCP / IP	
- USB USB1.1	

OPTIONAL SPECIFICATIONS

- Heidenhain DNC

Ī	- DCM Collision	
	- DXF Converter	
ĺ	- Adaptive feed contour	
	- KinematicsOpt	
ĺ	- Workpiece touch probes	TS-series
ĺ	- Tool touch probes	TT-series, TL Series
ı		

http://www.doosaninfracore.com/machinetools

G45 - G48



Doosan Infracore

Machine Tools

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